APPENDIX B
UNACCOMPANIED PERSONNEL HOUSING

TABLE OF CONTENTS

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UNACCOMPANIED PERSONNEL HOUSING

1. GENERAL AND SPECIFIC CRITERIA. The specific criteria contained in this appendix are applicable to the design of unaccompanied personnel housing facilities. The general criteria contained in the preceding chapters are applicable where such criteria are not included in this appendix. This appendix must be used with the chapters contained in this document.

2. UNACCOMPANIED OFFICERS PERSONNEL HOUSING (UOPH).

a. Standardization. The Center of Standardization (COS) for UOPH is the **\10\ US Army Corps of Engineers, Tulsa District /10/**.

b. **\10** Previous **Criteria.** All previous **Technical Instructions** issued by HQUSACE (**CECW**-E) for **UOPH** are superseded by this appendix. **/10/**

c. Space Criteria. Each officer will be provided with a private living suite, that will be designed in modules of four living units and may not be altered. Space criteria and accommodations for unaccompanied officer will be as follows:

(1) Permanent Party. The living suite amenities include a separate living room, bedroom, kitchen, private bath, and storage area.

(a) Grades 03 and Below. The minimum net living area of each private suite will be 39.1 m^2 (420 ft^2). These units will be combined in modules of four per floor. The gross area of the four-unit module, which includes the corridor, will be 209.3 m^2 (2,250 ft^2). The gross area of the living unit alone, including exterior and corridor walls and to the centerline of party walls, and the door recess, will be 46.5 m^2 (500 ft^2).

(b) Grades 04 and Above. The minimum net living area of each private suite will be 50.2 m^2 (540 ft^2). These units will be combined in modules of four per floor. The gross area of the four-unit module, which includes the corridor, will be 258.5 m^2 (2,780 ft^2). The gross area of the living unit alone, including exterior and corridor walls and to the centerline of party walls, and the door recess, will be 57.7 m^2 (620 ft^2).

(c) For more detailed information on modules, both mandatory and optional areas, refer to UOPH standard drawing DEF 724-10-01 (reference B-1).

(2) Visiting Officers Quarters (VOQ).

(a) Short-Term VOQ. A short-term residency for TDY of 30 days or less should be provided with a minimum net living area of 25.1 m^2 (270 ft^2), consisting of a living/sleeping room, bathroom, and closet. The gross area for a four-unit module, including the corridor, will be 135.8 m^2 (1,460 ft^2). The gross area of the unit alone, including exterior and corridor walls and to the centerline of party walls, and the door recess, will be 30.2 m^2 (325 ft^2).

(b) Long-Term VOQ. A long-term residency for longer than 30 days should be provided with a minimum net living area of 39.1 m^2 (420 ft^2), consisting of a living room, bedroom, bathroom, kitchen, and closet. The gross area for a four-unit module, including the corridor, will be 209.3 m^2 (2,250 ft^2). The gross area of the unit alone, including exterior and corridor walls and to the centerline of party walls, and the door recess, will be 46.5 m^2 (500 ft^2).

(c) For more detailed information on modules, both mandatory and optional areas, refer to VOQ standard design DEF 724-15-01 (reference B-2).

(3) Standard UOPH Buildings for Korea. The DA Standard Design for UOPH buildings will be used for

Korea. When site constraints will not allow for constructing the DA Standard Design, then the UOPH standard for Korea may be used, if approved by the MACOM. The space allowances for UOPH standards for Korea are shown in table B-1.

TABLE B-1 STANDARD SIZE UOPH BUILDINGS FOR KOREA

NUMBER OF OFFICERS	TYPE OF BUILDING	UNIT PLAN TYPE	GROSS AREA [1]	
			square meters	(square feet)
16	I	A [2]	721	(7,760)
16	II	A and B [3]	853	(9,184)
16	III	B	985	(10,608)
24	IV	A	1081	(11,640)
24	V	B	1478	(15,912)
48	VI	A	2163	(23,280)
48	VII	B	2956	(31,824)
32	VIII	A	1441	(15,520)

[1] Mechanical, electrical, and electronic equipment room space as required has been added to the gross areas shown. Additional space will not be added when determining a single gross area figure for each facility.

[2] Unit Plan Type A - 0-2 and below.

[3] Unit Plan Type B - 0-3 and above.

(4) Standard UOPH Buildings for Eighth Army, USAREUR, and the Seventh Army world-wide. The space allowances for UOPH buildings for overseas are the same as above with the following alterations:

(a) The walk-in closets will be replaced by reach-in closets. These closets will be placed in the same location as the walk-in closets, but will only be 0.6 m (2 ft) deep instead of 1.2 m (4 ft). Sliding mirror doors will be provided instead of the standard swinging door.

(b) The bedroom wall should be moved in order to reduce the vestibule between the bath and bedroom from 1.2 m (4 ft) to 0.9 m (3 ft).

d. Common Use and Service-Type Facilities.

(1) Core Area Module. An additional 11.5 percent of the total living unit module gross square footage that are indicated above will be provided for the core area. The additional mandatory space will include laundry rooms, lobbies, maid/janitor rooms and linen closets, electrical and communications closets, rest rooms, and vending areas.

(a) Laundry facilities will be sized at one washer and one dryer for every five residents. A deep laundry sink, a continuous shelf above the washers and dryers, and folding tables and seating should also be provided. Floor drains will be provided. Laundries require approximately 26 percent of the Core Area Module square

footage.

(b) The maid/janitor closet and linen storage on each floor requires approximately 11 percent of the Core Area Module.

(c) The electrical and communications closets on each floor require approximately five percent of the Core Area Module square footage.

(d) The rest rooms, which should be convenient to the Multi- Purpose Activity Room and may require showers, require approximately eight percent of the Core Area Module square footage.

(e) The lobby, which may be open to the floors above, requires 50 percent of the Core Area Module square footage. The lobby includes related areas such as the vending or lounge area; public phones on each floor; electric water cooler; access to the outside, both parking and outdoor commons areas; and interior circulation.

(2) Multi-Purpose Activity Room Module (MPAR). An additional 3.5 percent of the total living unit module gross square footage that are indicated above will be provided for a MPAR.

(3) Mechanical Equipment Services Module. Conceptually sized at approximately five percent of the total living unit module gross area. If larger mechanical equipment rooms are required, additional scope must be added during the programming phase.

(4) Bulk Storage Module. The bulk storage module will be sized at 7.4 m^2 (80 gross ft^2) per each living unit module. The bulk storage module is mandatory for the UOPH and optional for the VOQ.

(5) Stair Module. The gross area for each stair module approximates 18.6 m^2 (200 ft^2) per floor if the stair is enclosed, and 9.3 m^2 (100 ft^2) per floor if the stair is open.

(6) Office Module (Optional). A minimum office module size would be 9.3 m^2 (100 ft^2). Larger complexes could be provided with approximately one percent of the total living unit module gross square meters (footage).

(7) Mud Room Module (Optional). The mud room module will be sized at 2.8 m^2 (30 ft^2) per living unit module.

(8) Transition Module (Optional). The transition module allows for a 45 m (15 ft) horizontal shift in the site to accommodate vertical changes in the terrain. Transition modules may be placed between the core area module and the living unit wings, or between modules of four living units. The four-unit per floor living unit module may not be divided.

e. Design Requirements.

(1) Standard Design. The DA Standard Design Packages for UOPH and VOQ, DEF 724-10-01 (reference B-1) and DEF 724-15-01 (reference B-2) prepared by the Tulsa District Engineer Office will be used when developing designs for UOPH and VOQ.

\10\ /10/

(2) Provisions for Physically Handicapped Individuals. UOPH buildings are intended to be used and occupied by able-bodied officers; therefore, private living suites will not be designed for physically handicapped individuals. However, areas accessible to the general public and civilian employees, such as offices and public toilets, will be so designed. See chapter 7 of **\10\ TI 800-01 /10/**

(3) Floor and Other Materials.

(a) Carpet. Carpet will be provided in private living suites, lounges, and corridors. The carpet will conform to the technical requirements contained in **\10\ UFGS 09680A (reference B-3) /10/**, and will be provided from MCA funds. The carpet will have patterns or textures that do not readily show dirt or stains. Solid or light colored carpet should be avoided.

(b) VCT. Vinyl Composition Tile (VCT) is the standard floor material in kitchen areas.

(c) Ceramic Tile. Ceramic tile floors will be provided in bathrooms. The bathtub area will be tiled from the top of the bathtub to the ceiling. Other areas in the room will have a tile wainscot.

(d) Partitions. There will be no exposed concrete masonry units (CMU) in public areas and living/sleeping rooms. A skim coat of plaster or gypsum wallboard is required.

(e) Corridors. Corridors in UOPH will be a minimum of 1.5 m (5 ft) wide. Corridors should be wide enough to permit two persons to pass each other without turning sideways.

(4) Windows.

(a) Windows in private living suites will be aluminum, double hung, or equivalent, multiple glazing or insulating glass, with insect screens. Insect screens will be secured with interior metal clips. The minimum size will be that required by Life Safety Codes.

(b) Windows in private living suites and lounges will be furnished with drapery systems including tracks, carriers, and operators. The drapery systems will be provided from MCA funds. The design agency will work with the using service to coordinate the heading system with the fabric panels. The drapery panels will be purchased and installed by using other than MCA funds, and will be procured with the other UOPH building furnishings.

(5) Doors and Hardware.

(a) Private Living Suite Room Doors. See subparagraph 3.f.(7)(b) below for requirements.

(b) Exit Doors. UOPH building exit doors leading directly to the exterior at ground level will be provided with panic hardware conforming to NFPA 101, paragraph 5-2.1.7 (reference B-5). All of the other UOPH building doors will conform to NFPA door requirements.

(6) Sound Control. Attention will be given during design to ensure sound reduction between private living suites. Corridor and party walls, and floors of private living suites will have a sound transmission loss of not less than 45 decibels.

(7) Signage. A signage system incorporating the following requirements **\10** will be provided. **Guidance on signage is available in EP 310-1-6** (reference B-6). **/10/**

(a) Each private living suite door will be provided with an unobtrusive identification number to aid in key control. In addition, each door will be provided with an insert frame permanently affixed at eye level. Insert frames will be suitable for receiving identification cards of the room occupants.

(b) Each building in a project will be identified for the convenience of new occupants, visitors, emergency personnel (such as fire fighting), and service personnel. The signage system will include provisions for building identification as assigned by the installation facilities engineer.

(8) Fallout Shelters. See subparagraph 3.f.(13) below for requirements.

(9) Television and Radio Systems.

(a) Antenna needs for television and user-supplied radio systems will be determined with the using service during the design process and planned so that the installation of the equipment will not be an intrusion on the aesthetic concept of the project.

(b) One entertainment television outlet will be provided in each private living suite and, where appropriate, in lounges. A power receptacle will be located adjacent to each television outlet.

(c) Signal source for entertainment television will be by local subscription service to a commercial CATV vendor where available at the installation. Information and requirements therefore will be obtained from the local Director of Information Management. Where no CATV subscriber service is available, MATV service will be provided under the UOPH building contract by extension of existing on-installation systems where practicable. A new MATV system will be provided if CATV or existing MATV services described above are unavailable, or if the existing MATV system cannot be expanded.

(10) Telephone System.

(a) One non-administrative telephone outlet will be provided for each private living suite for personal use. Raceway systems, cables and telephone outlets will be provided for non-administrative telephone system purposes and funded using project funds. Telephones and equipment for non-administrative telephone systems are not authorized for procurement and installation using project funds. (b)Telephone outlets will be provided in offices and areas reserved for public telephones.

(c) The location of cabinets and outlets for the telephone system will be coordinated with the local Director of Information Management.

(11) Elevators. Freight and passenger elevators will not be provided in UOPH buildings less than four stories in height.

f. Improvement Projects. The objective for all improvement projects for UOPH will be to achieve, approximately, new space criteria and construction standards. All necessary improvements to a facility to achieve the required new construction standards will be done as one project. Phased construction over a period of years will not be used to bring a facility up to new construction standards. Improvements will meet the criteria contained in this document.

3. UNACCOMPANIED ENLISTED PERSONNEL HOUSING (UEPH).

a. Standardization. The Center of Standardization for UEPH is the **\10\ US Army Corps of Engineers, Savannah District /10/**.

b. **\10** Previous **Criteria.** All previous **Technical Instructions** issued by HQUSACE (**CECW**-E) for UEPH are superseded by this appendix. **/10/**

c. **\10** UEPH and Support Facilities. UEPH **facilities, along with \27\ associated operations, admin, and dining facilities /27/**should be programmed as separate line items on a single DD Form 1391**. The Army's intent is to program, design, and construct all components of a brigade or battalion barracks complex as a single project. Incremental construction of small capacity facilities should not be undertaken when long-range requirements can be consolidated by adjustments in programming. /10/**

d. \24\Planning Guidance. The number of persons to be accommodated in a UEPH building will be based on the **maximum utilization and not the intended utilization.**

(1) Intended Utilization. The intended utilization is defined as the actual number of personnel planned to be housed within a UEPH building based on a proposed grade distribution with one person per private living/sleeping room at grade E1 through E4; or one person with both a living and a sleeping room at grades E5 through E6. (Per previous DA assignment policy, E7 through E9 personnel will continue to be housed off-post and, therefore, are not a factor in computing UEPH spaces.)

(2) Maximum Utilization. The maximum utilization is defined as the number of personnel that can be housed within a UEPH building at the E1 through E4 grade level. Maximum utilization is a summation of the following:

(a) One multiplied by the intended number of E1 through E4.

(b) Two multiplied by the intended number of E5 through E6. /24/

(3) Gross Area.

(a) For programming purposes, the **UEPH** gross area will be determined by multiplying the **intended** utilization by **34** m^2 (**366** ft^2). **This factor may be increased to 36 m^2 (388 ft^2) for high-rise facilities (over three stories) or to meet other site-specific requirements**.

(b) The gross area includes the total area of all functional areas required in a UEPH **complex** within the outside building lines including all **modules (living units)**, **common areas, and support areas (**stairways, foyers, interior or exterior corridors, janitor's closets, and mechanical, electrical, communication equipment room space, etc**)**.

(4) Space Criteria and Accommodations. The space criteria and accommodations for UEPH will be as shown in table B-2.

TABLE B-2 SPACE CRITERIA AND ACCOMMODATIONS FOR UEPH		
GRADE	ACCOMMODATIONS AND NET LIVING AREAS	BATHROOM FACILITIES
E1 Recruits	Open bay with a minimum net living/sleeping area of 6,7 m^2 (72 ft^2) per person and a maximum of 60 people to a room [1]	Central Bathroom [4]
E1 to E4	**\10** A private room with a net living/sleeping area of **not less than 13 m^2 (140 ft^2) and not more than 17 m^2 (183 ft^2), a 3 m^2 (32 ft^2) walk-in closet, and a shared** \24\ /24/ **kitchen, [2 & 3] /10/**	Two-person shared bathroom **\24\ /24/**
E5 to **E6**	**\24** A private **living room and a private sleeping room each at 13 m^2 (140 ft^2) and not more than 17 m^2 (183 ft^2), a 3 m^2 (32 ft^2) walk-in closet, and a private kitchen [2 & 3] /24/**	**\24\ Private bathroom /24/**

[1] Net living/sleeping area is defined as one equal share per recruit of the living/sleeping room area. The living/sleeping room area will be measured to the inside face of the peripheral walls.

[2] **\10\ The net living/sleeping room area is defined as the clear area allocated for an individual's living room/bedroom functions, including room circulation space, but not including other areas of the module such as bathrooms, closets, kitchen, and general circulation space in those portions of the module. /10/**

[3] **\10** The **kitchen** includes a counter top, cabinetry, sink, and space for **a** refrigerator**, stove (or a built-in two-burner cooktop),** and a counter-top microwave. **/10/**

[4] **\10\ See criteria for Basic Combat Trainee (BCT) Barracks /10/**

e. **\10** Individual Living/Sleeping Room and **UEPH Complex** Concept. **/10/**

(1) **\10** Objective. The overall objective of the UEPH building concept is to provide privacy, security, and comfort for the soldier to the extent possible, and at the same time maintain safety **and a reasonable amount of** command and control. **/10/**

(2) Basic Elements. The basic elements of the UEPH **complex** concept are:

(a) **\24\ Two bedroom, one bathroom, and one kitchen modules. This configuration will allow individual** living/sleeping rooms with walk-in closets, and **either shared or private** bathroom**s and kitchens, depending upon the occupant's grade. /24/**

(b) **\10\ UEPH support areas including circulation spaces (stairs and corridors); mechanical, electrical, and communications spaces; exterior boot wash areas; and outdoor storage buildings.** Accessibility to the living/sleeping rooms **will be** from interior **enclosed** corridors **or open breezeways**. **Exterior balcony access is not authorized for new construction. Regardless of the entry approach selected, the corridor or breezeway area will be calculated as half-scope in relation to the 34 m^2 /person gross area limitation for UEPH facilities. Other areas calculated as half scopes include exterior covered areas such as balconies, entries, loading platforms, and porches; and stairs (enclosed or open) and elevator shafts. /10/**

(c) **\10\ UEPH common areas including entry lobby, CQ (Charge of Quarters) station with counter, vending area, ice machine, mail facilities, janitor closet, laundry facilities, field gear cleaning area (mud room), public phones and toilets. \27\The location and specific functions to be accommodated in these areas will be left to the discretion of the Garrison Commander. /27/ \24\ /24/ /10/**

1/ Entry Lobby and CQ Station. This will be the main entry area to the UEPH complex, and hence, should serve as a focal point for the community. A waiting area for visitors and guests will be provided. The CQ counter should be oriented to facilitate arrival of individuals to the facility, and to monitor common area activities. The entry lobby area, including the male and female public toilets, will be handicapped accessible.

2/ Laundry Facilities. Laundry facilities **\24\ should** be dispersed to multiple floors/locations within the complex, **or as an** option, **provision made for** individual washers and dryers in each module. **/24/** In any event, accommodation will be made for a minimum of one washer for every **\10\ 12 soldiers and one dryer for every 8 soldiers based on intended UEPH utilization. If laundry facilities are consolidated, the dryers may be doubled stacked for maximum space utilization, and should be vented individually to the exterior of the building (avoid manifolding vents in a common exhaust pipe). Other amenities to be considered are folding tables and laundry sinks. /10/**

\10\ 3/ Mail Room and Mail Boxes. Determination should be made whether there will be a centralized post office for the brigade community, or decentralized interior or exterior mailrooms in the UEPH Complex. The determination of postal requirements is at the discretion of the installation. The design agency will verify postal requirements in advance of the design. When mailrooms are determined appropriate in UEPH complexes, mailrooms will be secure rooms that are physically separated from other rooms. Per UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings (reference B-18), mail rooms are to be located along the perimeter of the building, with no key utilities running through or on common walls between the mail room and other rooms in the facility. Mailboxes will be individual recessed apartment type mailboxes. The number of mailboxes to be provided will be based on the maximum utilization of the UEPH building. The numbering sequence will be coordinated with the using service. Mailboxes will be furnished and installed using MCA funds. Mailboxes will conform to the criteria contained in United States Postal Service (USPS) Publication 17 (reference B-8), except that the mailboxes will be provided with combination locks, in lieu of key locks. USPS Publication 17 establishes dimensional, installation and nesting requirements and the minimum acceptable manufacturing criteria for mailboxes. USPS Publication 17 designates the size and capacity of each individual mailbox and the overall testing requirements. With the exception of providing combination locks in lieu of key locks, the mailboxes supplied by manufacturers, as well as the installation of the mailboxes, will conform to the requirements contained in USPS Publication 17. Unless otherwise approved by HQUSACE, apartment type mailboxes will be 'Type II Horizontal' \24\ or as an option, 'rack ladder' /24/ as defined in USPS Publication 17. Mailboxes may be the rear or front-loading type. A secure mailroom will be provided to service the mailboxes. Coordination with the installation postal officer is required for each project design. /10/

(**d**) **\10** The basic planning element will be the battalion. **Normally, each UEPH building will be limited in size to accommodate a battalion size element. Under certain circumstances, more than one battalion may be housed in a single UEPH building. These situations are limited to those projects with multiple, small military units where it is not desirable to construct numerous, small buildings in lieu of more economical large UEPH buildings. /10/** UEPH buildings will be grouped to foster unit cohesion at the battalion level and to provide a comprehensive brigade community. **\24\ In conjunction with this concept, the Army Chief of Staff's 1992 guidance for excluding training and work activities from the barracks residential area must also be incorporated into brigade community planning. The intent is to ensure separation between living and working environments in order to improve the soldier's quality of life. /24/**

(**e**) The comprehensive brigade community concept will necessitate the review of the installation master plan in terms of the whole barracks renewal program and the revitalization potential of the installation. Branch exchanges or similar convenience facilities should be planned and coordinated with the Army, Air Force Exchange Service (AAFES).

f. UEPH Design Requirements.

(1) General. **\28\ Traditionally, Army barracks have been designed to technical standards that in many cases exceed industry (private sector) codes and standards, e.g., use of Type II non-combustible construction versus Type V construction. Such an approach is not in the Army's best economic interests. Therefore, consistent with current Federal and Defense Department policy, future barracks designs shall not exceed private sector standards unless there is a compelling and justifiable operational requirement. Also, renewed emphasis shall be placed on selecting materials, equipment, and finishes that have the lowest life cycle cost, not necessarily the lowest O&M cost. Future barracks may be of any type of construction, as long as they comply with the requirements of the International Building Code (IBC), except as modified by UFC 1-200-01 (reference B-21), for determining construction type. Also, it should be noted that UFC 3-600-01 (reference B-22), establishes fire protection engineering policy and criteria for Department of Defense (DOD) facilities. UFC 3-600-01 cancels and supersedes MIL-HDBK-1008C. /28/**

(a) **\10** Standard Design. The DA Standard Design Package for UEPH, DEF 721-10-02 (reference B-7) prepared by the Savannah District **is no longer applicable**. **Instead, information contained in this document \27\ shall form the basis of design criteria for UEPH facilities. Also, the Unified Facilities Criteria for UEPH Complexes (reference B-17), which was developed as a request for proposal (RFP) guide for design-build projects, may be used as guidance for all UEPH designs. /27/ /10/**

(b) **\10** The standard "Y"-Shaped UEPH building configuration and its associated design**, prepared by the Savannah District,** no longer applies when developing designs for UEPH. **/10/**

(c) **\10\ UEPH Modules**.

1/ UEPH **complexes** will be composed of standard modules, **living units, \24\ consisting of two** private living/sleeping rooms **with walk-in closets, a kitchen,** and a bathroom. **The standard module is intended to accommodate two lower grade enlisted personnel, E1 through E4; or one NCO, E5 through E6. When assigned to a NCO, one room will be furnished as a bedroom and the other as a living area. /24/**

2/ Living/sleeping rooms shall contain a minimum net area of 13 m^2 (140 ft^2) and not more than 17 m^2 (183 ft^2). A 3 m^2 (32 ft^2) walk-in closet to accommodate clothing, storage of boxes, \27\ personal items /27/, etc., will be provided adjacent to each living/sleeping room. No more than two living/sleeping rooms shall be provided within a module. \24\ /24/

3/ The kitchen shall contain**\28\, at a minimum,/28/ base cabinets, wall mounted upper cabinets, countertop with kitchen sink**. **Minimum bowl inside dimensions** shall be **400mm x 400mm x 180mm deep [16" x 16" x 7" deep]**. **Provide a 2-burner electric cooktop or space for a minimum 2-burner**

electric range with self-cleaning oven, and range hood with exterior exhaust. Provide space for refrigerator-freezer (minimum 9 total cubic feet), and space for a microwave oven (min 0.9 cubic feet). As an option, provision may be made for an eating area (either space for table and chairs or built-in counter eating area). Space for a stackable, \28\heavy-duty/28/ residential type clothes washer and dryer may also be provided as an option.

4/ Bathrooms shall contain\28\, at a minimum,/28/ a lavatory with base cabinet, water closet, and a shower or combination tub/shower unit. Appropriate provision will also be made for medicine cabinets, towel bars, soap dishes, tooth brush holders, toilet paper dispensers, door mounted robe hooks, and mildew-resistant shower curtains \24\ /24/.

(2) **Accessibility Requirements. All areas to be accessible to physically disabled persons shall conform to the Uniform Federal Accessibility Standards (UFAS) Federal Standard 795, and the Americans With Disabilities Act Accessibility Guidelines (ADAAG). Able-bodied military personnel shall occupy UEPH living units, thus provisions for the disabled are not required within the living units. Areas that may be used by non-military employees or visitors, specifically the entry lobby and public toilets, shall be accessible. See chapter 7 for additional guidance. /10/**

(3) Exterior Design.

(a) The building exterior design will be compatible with the installation architectural theme and installation design guide. Exterior materials will be carefully selected to provide attractive**, \10\ economical, /10/** and durable low maintenance surfaces.

(b) Passive solar design features will be provided to the maximum extent possible and practical.

(c) Hipped or gabled roofs with a pitch of 3:12 or greater will be provided for UEPH **\10\ facilities**. **/10/** Flat roofs will not be provided.

(4) Interior Materials and Finishes.

(a) Interior Design. The Interior Design Manual (reference B-10) prepared by the Office of the Assistant Chief of Staff for Installation Management (OACSIM) identifies the level of quality and special requirements for finishes and furnishings for UEPH designs. This manual should be used when selecting building related and furniture related interior designs for new and modernization projects. See chapter 6 for interior design requirements.

(b) Finish Schedule. **\28\The following finishes are considered the minimum acceptable for the indicated functional areas: /28/**

1/ **\10\ Entry Lobby/CQ Station**. **Porcelain** or quarry tile floors, with an option of **\27\/27/** vinyl composition tile (VCT) **\28\or stained/polished ornamental/28/** concrete, and painted walls will be provided.

2/ Corridor. **VCT** floors with an option of **porcelain tile**, quarry tile or **\28\stained/polished ornamental/28/** concrete will be provided. Options for walls include paint, vinyl, fabric, **synthetic acrylic** or acoustical wall covering. Varied use of lighting, wall treatment, and **floor** patterns is encouraged to visually break long corridors.

3/ Living/Sleeping Room. **VCT** floors with an option of an area rug (other than MCA funded) **\27\/27/**, and painted plaster skim coated CMU walls with one wall of a "**tackable" wall covering or painted gypsum wallboard will be provided.**

4/ Bathrooms. Ceramic tile floors, **and painted walls, with option for ceramic tile wainscot, will be**

provided. Walls around shower/tub enclosure shall be full height ceramic tile, or material with equivalent scratch-resistance, water-resistance, and durability.

5/ Public Toilet Rooms. Ceramic **or porcelain** tile floors, and **painted walls, with option for ceramic tile wainscot,** will be provided.

6/ Laundry. **Porcelain or** quarry tile**, or sealed concrete** floors, and painted walls will be provided.

7/ Mail Room. **Porcelain** or quarry tile, **\27\/27/**, **VCT,** or concrete floors and painted walls will be provided.

8/ Janitor. **Porcelain** tile or concrete floors and painted walls will be provided.

9/ Mechanical, Electrical Equipment, and Storage Rooms. Concrete floors and exposed concrete masonry unit (CMU) **or gypsum wallboard** walls will be provided.

10/ Main Stairwell**s**. Low profile rubber flooring or rubber treads and risers**, or sealed concrete flooring, treads and risers**, and painted walls will be provided.

11/ Emergency Exit Stairwell**s**. Concrete floors and painted walls will be provided.

\27\(c) **Carpet**. **Installed wall-to-wall carpet will not be permitted as a floor finish in UEPH. Living/sleeping rooms may be furnished with an optional area rug (other than MCA funded) over VCT flooring. /27/ /10/**

(d) Partitions. There will be no exposed concrete masonry unit (CMU) walls in public areas or sleeping rooms. A skim coat of plaster or gypsum wallboard is required.

(e) Ceilings.

1/ Textured ceilings on exposed concrete**, \10\ gypsum wallboard, /10/** or plaster will be provided in the living/sleeping rooms. Suspended acoustical tile ceilings will not be provided in the living/sleeping rooms.

2/ Suspended acoustical tile or textured ceilings **\10\ may** be provided in other **areas**. **/10/**

(f) Exceptions to the above criteria will apply to UEPH used for training (non-permanent party) and UEPH located in remote areas in OCONUS. **\10\ In these cases, painted CMU can be provided in lieu of plaster or other options. /10/**

(5) Corridors. **\24** Interior breezeways or corridors in UEPH buildings will be a minimum of **1.5** m (**5** ft) wide. In any event, breezeways **or** corridors should be wide enough to permit two soldiers to pass each other without turning sideways. **/24/**

(6) Windows.

(a) Windows in living/sleeping rooms and common areas will be **operable. They will contain** multiple glazing or insulating glass. **\10\ Provide insect screens.** The minimum size will be that required by Life Safety Codes. **Conformance with AT/FP requirements for use of annealed laminated glass shall be required. /10/**

(b) **\10\ Interior window treatments** will **include** horizontal or vertical blinds and/or drapery systems including tracks, carriers, and operators. The blinds and/or drapery systems will be provided from MCA funds. The design agency will work with the using service to coordinate the heading system with the fabric panels. The drapery panels will be purchased and installed with other than MCA funds, and will be procured as a part of a coordinated UEPH furnishings package. **/10/**

(7) **\10\ Doors and Hardware.**

(a) The selection of doors and hardware will receive careful attention in order to prevent future maintenance problems. The hard use and frequent abuse of doors will result in excessive maintenance problems unless the doors and hardware are properly selected for the desired functions, and correctly specified and installed.

(b) Reliable locking devices will be specified to provide individual soldiers with adequate privacy and personal security while satisfying life safety requirements. /10/

(8) Sound Control. Attention will be given during design to ensure sound reduction between UEPH living/sleeping rooms and **\10\ other areas**. Corridor and party walls, and floors of living/sleeping rooms and **common areas /10/** will have a sound transmission **\24\ class** (**STC) of not less than 50. /24/**

(**9**) **\10\ Signage. A signage system incorporating the following requirements will be provided: /10/**

(a) Each living/sleeping room will be provided with an unobtrusive identification number to aid in key control. In addition, each door will be provided with an insert frame permanently affixed at eye level. Insert frames will be suitable for receiving identification cards of the room occupants.

(b) Each room in the **\10\ common area /10/** will be provided with an unobtrusive identification plate to aid in key control and room identification.

(c) Each building in a project will be identified for the convenience of new occupants, visitors, emergency personnel (such as firefighting), and service personnel. The signage system will provide for building identification as assigned by the installation facilities engineer.

(**10**) Alarm and Monitor System. A fire alarm annunciator panel will be provided in the **\10\ CQ station**. An alarm will be initiated in the event of activation of a manual fire alarm station, system smoke detector, heat detector, or sprinkler supervisory switch. Smoke detectors located in individual sleeping rooms do not require monitoring. An alarm for UEPH stairwell exit doors will be audible **in the CQ** area. **/10/ \24\ Mass notification requirements outlined in UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings (reference B-18) shall be incorporated into all designs. /24/**

(**11**) Fallout Shelters.

(a) Where a deficit in PF-100 shelter space exists at an installation under the Army Survival Measures Plan, selected areas (bathrooms, corridors, and storage rooms) in multi-story UEPH **complexes** will be designed for dual use as fallout shelters. The using service will provide the number of PF-100 deficit shelter spaces on the installation.

(b) Due to the amount of required fenestration, the living/sleeping areas **\10\ and common areas** in UEPH **complexes** generally do not qualify as PF-100 and above shelter spaces. However, some of these areas may qualify as PF-40 or greater shelter spaces. Also, slanting factors will be considered in the **design**. **/10/**

(c) The estimated cost of providing fallout shelter spaces will not exceed one percent of the project construction costs, which is defined as "no identifiable cost."

(d) For installations with no deficit of PF-100 shelter spaces, multi-story UEPH building projects will include **\10\ identification /10/** of PF-40 and above shelter spaces inherent in the structure at no additional project construction cost.

(**12**) Electrical Criteria.

(a) Receptacles and Outlets.

1/ **\10\ A minimum of** three duplex receptacles and one quadruplex receptacle will be provided in each living/sleeping room and located to provide maximum accessibility to the occupants. In addition, one duplex receptacle will be provided adjacent to each lavatory and **four** duplex receptacle**s** will be provided in the **kitchen to accommodate appliances**. **/10/**

2/ The number and types of receptacles to be provided in areas other than living/sleeping areas (**\10\ lobby**, **/10/** laundry, storage and equipment rooms) will be coordinated with the using service.

3/ One receptacle will be provided for each 25 m (80 ft) length of corridor for maintenance machines. The types and voltages of the receptacles to be provided will be coordinated with the using service.

4/ Receptacles, outlets, wall switches, and related conduit shall not be surface mounted. Conduit shall not be exposed.

(b) Lighting.

1/ Lighting in living/sleeping rooms will be provided by wall or ceiling mounted fixtures.

2/ Fluorescent lighting will be used to the maximum extent practicable. **\10**

3/ Corridor and bathroom fixtures will be provided with unbreakable lenses. Stairway and exterior light circuits will be photoelectric **or timer** controlled and furnished with unbreakable lenses. **/10/**

(c) Television and Radio Systems.

1/ Antenna needs for television and user-supplied radio systems will be determined with the using service during the design process and planned so that the installation of the equipment will not be an intrusion on the aesthetic concept of the project.

2/ **\10** One entertainment television outlet will be provided in the **lobby of the common area**. One outlet will be provided in **each UEPH living/sleeping room** so that each occupant has access to an individual entertainment TV source. TV outlets will be located adjacent to a power receptacle. **/10/**

3/ Signal source for entertainment television will be by local subscription service to a commercial CATV vendor where available at the installation. Information and requirements therefore will be obtained from the local Director of Information Management. Where no CATV subscriber service is available, MATV service will be provided under the UEPH building contract by extension of existing on-installation systems where practicable. A new MATV system will be provided if CATV or existing MATV services described above are unavailable, or if the existing MATV system cannot be expanded.

(d) Telephone System.

1/ A single non-administrative telephone outlet will be provided for each **\10\ living/**sleeping **room /10/** so that each occupant has access to an individual telephone line for personal use. Raceway systems, cables and telephone outlets will be provided for the non-administrative telephone system purposes and funded using project funds. Telephones and **\10\ switching \10** equipment for non-administrative telephone systems are not authorized for procurement and installation using project funds.

2/ Telephone outlets will be provided **\10\ at the CQ station in the common area** and **other** areas reserved for public telephones. **/10/**

3/ The location of cabinets and outlets for the telephone system will be coordinated with the local Director of Information Management. **\10\ The size of communication equipment rooms will be in accordance with the Installation Information Infrastructure Architecture (I3A) and Implementation Guide (reference B-19). /10/**

(e) Intercommunication System.

1/ If required by the using service, an inter-communication system may be provided. Such a system will consist of master stations with selective and all-call features, and speakers. **\24\ Also, see Item f.(10) Alarm and Monitor System, for mass notification requirements. /24/**

2/ A master station will be located **\10\ at the CQ station /10**. The location of the master station will be coordinated with the using service.

3/ Speakers will be located in corridors, **\10\ lobby**, **/10/** and laundry rooms, and will be the one-way, slave type. Speakers in corridors will be located to provide for reception of announcements to all adjacent areas. All speakers will be of the vandal-proof type.

(**13**) Elevators. Freight elevators will not be provided in UEPH buildings less than four stories in height, and passenger elevators will not be provided in UEPH buildings less than five stories in height.

(**14**) **\10** Mechanical Systems for UEPH **Complexes**.

(a) General. **The designer in coordination with the installation shall determine the allowable system types and fuel options to be used for** Heating, Ventilation, and Air-Conditioning (HVAC) of UEPH **facilities. HVAC for UEPH facilities can** be accomplished by **individual heat pumps,** fan-coil units, variable air volume (VAV) systems, geothermal or water source heat pumps or by other systems appropriate for the geographical area. **All reasonably equivalent systems and fuel options within a range of 10 percent based on life cycle cost analysis shall be allowed.** System selection shall be based on life cycle cost, energy considerations and operation and maintenance requirements and capabilities. **All piping will be concealed.** Requirements of this section are based on the use of fan coil, water source heat pumps or similar room type units in the UEPH modules. **/10/**

(b) Environmental Controls. **\10** These instructions apply to all UEPH projects and provide guidance in the design of HVAC system**s** for the **UEPH module (**living/sleeping **rooms, kitchen** and bathroom areas**)**. **/10/**

1**/ \28\ Except in the case where a common thermostat is permitted under paragraph 14 (b) 2 below, o**ccupant control of each living/sleeping room temperature will be achieved by thermostats located to effectively sense room temperature and to be readily accessible by the occupant. **/28/** Temperature setpoint adjustment by the occupant, outside of the deadband, will be provided. Multi-speed fan controllers shall also be provided, as appropriate. The fan controllers shall be wall mounted or otherwise readily accessible to the room occupant and shall have clearly marked OFF, LO, MED and HI positions.

2/ Units may be horizontal type concealed in the ceiling plenum, floor mounted units located under the windows against the exterior wall, or vertical units. Sufficient access will be provided for required maintenance. Location shall be coordinated with the installation to ensure compatibility with installation maintenance capabilities and practices. **\28\ Where it is a requirement by the user and/or maintenance personnel that the units serving the sleeping rooms are to be located external to the one plus one module, it is permissible to use one common unit to serve two sleeping rooms and the associated common area to minimize reduction of the living space. In this arrangement, the thermostat shall be located in the common area, the space sensor shall respond to return air from the sleeping rooms, and care shall be taken in the location of the thermostat so that its operation is not adversely impacted by heat from the range in the common area. /28/**

3/ The bathroom exhaust fan system will be controlled by a manual on and off switch located in the bathroom, or by a continuously operating, ducted central exhaust fan, to prevent moisture from accumulating in bathrooms and to remove odors and other contaminants from the building. **\10\ /10/**

4/ To maintain a comfortable and healthy indoor environment, and minimize mold/mildew growth and other sources of contaminants, the proper air balance between the living/sleeping room fresh-air requirement and the bathroom **\10** and other exhaust air requirements is critical. Outside air quantities will be sufficient to meet ventilation requirements and maintain a positive pressure relative to the outdoors in the living/sleeping rooms. **/10/**

5/ Outside air will be treated (heated/cooled) by a separate dedicated **\10\ air-handling /10/** unit to a neutral temperature, or as necessary to handle the latent load, and ducted to each living/sleeping room. Desiccant cooling to reduce latent loads on the outside air unit and/or enthalpy wheels to exchange heat with the exhaust air will be considered, especially in areas subject to periods of high humidity. This can significantly reduce energy usage while providing increased comfort in the space and may effectively allow the room units to operate with “dry” coils. **\18\ /18/**

6/ Where UEPH buildings are sited such that living/sleeping rooms have north and south exposures, hence, on sunny winter days have naturally warm south rooms and simultaneously have naturally cold north rooms, the system design will accommodate the exposures. In addition, fan-coil systems will have seasonal **\10\ changeover /10/** and heating water temperature reset controlled by outdoor temperatures.

7/ Low-limit protection will be provided for each building to protect from freezing during unoccupied periods when the room units may be shutdown.

(c) Energy Conservation Requirements.

1/ All electric control wiring and pneumatic tubing required for each living/sleeping room fan-coil or heat pump unit and corresponding bathroom exhaust system will be run to a separate and dedicated electric/electronic/pneumatic panel(s). The panel(s) will be located in the electrical or mechanical equipment room, or both.

2/ **\28\ Except in the case where a common thermostat is permitted under paragraph 14 (b) 2 above, thermostats** will have the capability to control space temperature in each living/sleeping room during the heating and cooling seasons. **/28/** The thermostats will maintain a maximum heating season space temperature of 21 °C (70 °F) and a minimum cooling season space temperature of 24.4 °C (76 °F) at the center of the living/sleeping room and 1.5 m (5 ft) above the finish floor.

3/ Night setback/setup of heating and cooling systems especially in administration and operations areas will be provided. Coordination with the installation facilities engineer is required.

4/ Space low temperature protection shall be provided to preclude freeze damage to the building when unoccupied for extended periods of time. The protection sequence shall essentially override the normal control and setpoints to maintain a minimum space temperature of 4.4 degrees C (40 degrees F). Space low temperature protection is not required in climatic areas where freezing temperatures rarely occur or are of such short duration that freeze damage to the building will not occur.

5/ Instructions for occupant operation and maintenance of HVAC systems will be coordinated with the installation facilities engineer.

(**15**) Plumbing Criteria.

(a) General.

1/ Bathtubs will be acid-resisting enameled cast iron with slip-**resistant** bottoms. The bathtubs will conform to Federal Specification WW-P-541/3B (reference B-12).

2/ Utility connections and **ductwork** will be provided for each proposed appliance in laundry facilities.

3/ Each **\10\ UEPH facility** will be provided with a mud room with service sinks and counter space for washing of soldiers' equipment. **The mud room will be co-located with the \24\ ground floor /24/ laundry facilities when possible. /10/**

(b) Hot Water Temperatures.

1/ The actual measured temperature of the hot water delivered to lavatories, and combination bathtubs and showers, or shower stalls in living/sleeping room bathrooms will not exceed 43.3 °C (110 °F).

2/ A wall sign will be provided in laundry facilities to advise users of the hot water temperature limit and the use of "coldwater" type detergents recommended if washing difficulties are encountered at 43.3 °C (110 °F).

(**16**) Maintenance Considerations and Vandalism. Prevention of excessive ware and vandalism will be considered during the design of UEPH **facilities**. Attention will be given to, but not be limited to, bathroom accessories, **common area amenities**, doors, door closers, door frames, door hinges, door stops, drinking fountains, exit signs, fan-coil units, fan-coil wall switches, fire alarms, fire detectors, hose bibs, intercom systems, light switches, location of parking areas for bicycles and **\10\ motorcycles, locksets**, **/10/** panic hardware, plumbing fixtures, thermostats, and window screens and hardware.

(17) \10\ Sustainable Design. Sustainable design techniques shall be considered as they relate to site and building design, construction, and operation. Techniques that conserve energy, improve livability, and can be justified by life cycle cost analysis as cost effective are encouraged. The goals for improving the sustainability of facilities include: (a) use resources efficiently and minimize raw material resource consumption, including energy, water, land and materials, both during the construction process and throughout the life of the facility, (b) maximize resource reuse, while maintaining financial stewardship, (c) move away from fossil fuels towards renewable energy sources, (d) create a healthy and productive work environment for all who use the facility, (e) build facilities of long-term value, and (f) protect and, where appropriate, restore the natural environment. The level of incorporation of sustainable design principles will be measured through use of the Sustainable Project Rating Tool (SPiRiT), available through the internet. SPiRiT is the government version of the LEED Green Building Rating System™, developed by the U.S. Green Building Council.

(18) Anti Terrorism / Force Protection. Comply with the minimum construction standards of the UFC 4-010-01, DoD Minimum Antiterrorism Standards for Buildings (reference B-18). Coordinate with the installation security forces and facilities engineer to determine if the minimum standards are adequate for the project location. UEPH facilities are classified as troop billeting structures.

\28\ /28/ /10/

4. UEPH MODERNIZATION.

a. General. DA Standard Design Package for UEPH, DEF 721-10-01 (reference B-9) and the UEPH MOD drawings prepared by Fort Worth District Engineer Office (reference B-13) have been superseded.

b. Objective. All improvement projects for UEPH buildings should approximately achieve new space criteria and construction standards in accordance with **\24\ requirements identified in Technical Instruction (TI) 801-01, Barracks Upgrade Program, dated 3 Aug 1998, (reference B-20).** The guidance for cost issues for

modernization of UEPH are provided in AR 415-15 (reference B-14) and AR 415-17 (reference B-15). Each project will be based on sound architectural and engineering judgment to ensure the maximum use of existing assets within authorized funds. **/24/**

/X/5. **BASIC COMBAT TRAINEE (BCT) BARRACKS**..

a. Standardization. The Center of Standardization (COS) for basic **combat** trainee barracks is the **\10\ US Army Corps of Engineers, Tulsa District /10/**.

b. Previous **Criteria**. All previous **Technical** Instructions issued by HQUSACE (**CECW**-E) for basic **combat** trainee barracks are superseded by this appendix.

c. Space Criteria. The total gross area for a basic trainee barracks building (five companies, 1,120 trainees, 60 cadre) is estimated to be 25 622 m^2 (275,500 ft^2), including the covered opened spaces at one half the area. Table B-2 above includes space criteria guidance.

d. Department of the Army Standard Design. The DA Standard Design Package for Basic Training Barracks, DEF 721-81-01 (reference B-16) prepared by the Tulsa District Engineer Office will be used when developing designs for basic training barracks.

e. Provisions for Physically Handicapped Individuals. Basic trainee barracks buildings are intended to be used and occupied by able-bodied soldiers; however, certain areas in the buildings are accessible to the general public. See chapter 7. Therefore, the following applies:

(1) The site and building access will be designed for the physically handicapped. Parking spaces will be provided for the physically handicapped.

(2) Men's and women's toilet facilities adjacent to the lobby area accessible to civilian visitors or relatives of basic trainees, or both, will be designed for the physically handicapped.

(3) Battalion headquarters and classroom areas will be designed for the physically handicapped.

(4) Other areas in basic trainee facilities to be used solely by able-bodied military personnel will not be designed for the physically handicapped.

f. VCT and Carpet.

(1) Vinyl Composition Tile (VCT) is the standard floor material in classrooms, dayrooms, dining areas, NCOIC rooms, offices, platoon sleeping bays, and platoon lounges.

(2) Carpet may be provided in the following areas only if requested by the installation and approved by the MACOM:

(a) Cadre lounges.

(b) Cadre and NCOIC sleeping rooms.

(c) Visitor lounges and family rooms.

(3) Carpet will not be provided in basic trainee dining facilities.

6. ADVANCED INDIVIDUAL TRAINING (AIT) BARRACKS.

7. REFERENCES **/x/**

B-1 DEF 724-10-01, Department of the Army Standard Design Package for Unaccompanied Officer Personnel Housing

B-2 DEF 724-15-01, Department of the Army Standard Design Package for Visiting Officers Quarters
B-3 -NOT A VALID REFERENCE-

B-4 **\10\Omitted/10/**

B-5 NFPA 101, National Fire Protection Association Life Safety Code, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269

B-6 **\10\Omitted/10/**

B-7 DEF 721-10-02, Department of the Army Standard Design Package for Unaccompanied Enlisted Personnel Housing, dated 21 January 1994, developed under the Department of the Army Facilities Standardization Program and revisions 1 and 2 dated 7 October 1994 and 21 February 1997 respectively.

B-8 United States Postal Service (USPS) Publication 17

B-9 **\10\Omitted/10/**

B-10 **\27\Interior Design Manual (IDM) for Single Soldier Housing available from the US Army Engineer and Support Center, ATTN: CEHNC-IS-SP, 4820 University Square, Huntsville, AL 35816, or telephone (256) 895-1552./27/**

B-11 ANSI STD A156.2, 1983 Bored and Preassembled Locks and Latches or latest version.

B-12 Federal Specification WW-P-541/3B, Plumbing Fixtures (Bathtub)

B-13 UEPH MOD Drawings, Unaccompanied Enlisted Personnel Housing Modernization, August 1990.

B-14 AR 415-15, Military Construction, Army (MCA) Program Development, 1 December 1983 or latest version.

B-15 AR 415-17, Construction Cost Estimating for Military Programming

B-16 DEF 721-81-01, Department of the Army Standard Design Package for Trainee Barracks

B-17 \10\ Unified Facilities Criteria (UFC) 4-721-11.1 for UEPH Complexes, 9 July 2001, or latest version.

B-18 \24\ Unified Facilities Criteria (UFC) 4-010-01, DoD Minimum Antiterrorism Standards for Buildings, 31 Jul 02, or latest version. /24/

B-19 Installation Information Infrastructure Architecture (I3A) and Implementation Guide, latest version. /10/

B-20 \24\ Technical Instruction (TI) 801-01, Barracks Upgrade Program, dated 3 Aug 1998, or latest version. /24/

B-21 \28\ Unified Facilities Criteria (UFC) 1-200-01, Design: General Building Requirements, 31 Jul 02, or latest edition. /28/

B-22 \28\ Unified Facilities Criteria (UFC) 3-600-01, Design: Fire Protection Engineering for Facilities, 16 Jan 04, or latest edition. /28/